

इंटरनेट

मानक

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Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

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“Step Out From the Old to the New”

IS 12240-6 (1988): Methods of test for polyvinyl chloride boots, Part 6: Determination of tensile strength and elongation at break [CHD 19: Footwear]



“ज्ञान से एक नये भारत का निर्माण”

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“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

(Reaffirmed 2002)

METHODS OF TEST FOR POLYVINYL CHLORIDE BOOTS

PART 6 DETERMINATION OF TENSILE STRENGTH AND ELONGATION AT BREAK

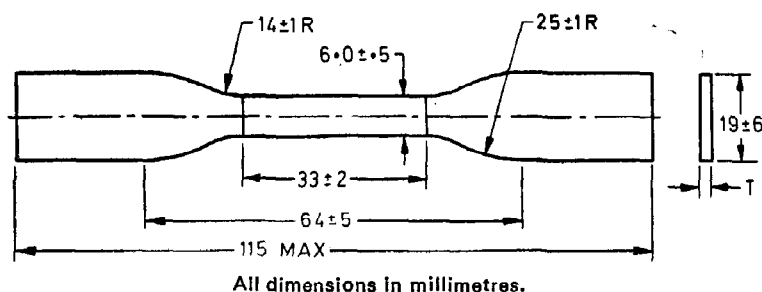
1. Scope — This standard (Part 6) prescribes the test procedure for determination of the tensile strength and elongation at break of components for polyvinyl chloride boots.

2. Apparatus

2.1 Tensile Testing Machine — Any suitable machine with a speed provision of 100 mm/minutes.

3. Test Piece

3.1 Test piece of the form and dimensions shown in Fig. 1 shall be cut out from the sample of boot, using a single stroke of a press with die. The cutting edge of the die shall be sharp and free from notches. Two parallel crayon lines, 33 ± 2 mm apart, shall be marked on the waisted part of each test piece as indicated in Fig. 1.



All dimensions in millimetres.

FIG. 1 DIMENSIONS OF TEST PIECE (DUMB-BELL)

4. Temperature of Test

4.1 Carry out test at $27 \pm 2^\circ\text{C}$, unless otherwise specified.

5. Conditioning the Test Piece

5.1 The test piece shall be conditioned at the test temperature for not less than 16 h immediately before testing [see IS : 196-1966 Atmospheric condition for testing (revised)].

6. Procedure

6.1 Measure the thickness by a micrometer gauge. The width of the test portion is assumed to be equal to the width between the cutting edge of the narrow central part of the die; for this purpose, the width of this part of the die is measured to the nearest 0.5 mm.

Take the average of three measurements, one in the centre and two on each side.

6.2 Insert a dumb-bell test piece into the grips of the tensile testing machine taking care to adjust it symmetrically so that the tension will be distributed uniformly over the cross-section. If tension is greater on one side of the test piece than on the other, the reference lines will not remain parallel and the maximum strength of the piece will not be developed.

6.3 Adjust the speed and start the machine. Measure the distance between the centres of reference lines as required to the nearest 1 mm taking care to avoid parallax, until the test piece breaks. Note the load on the test piece as required. Repeat the process with at least five specimens.

7. Calculation

7.1 The value of tensile strength (S) is given in mega pascals, by the following formula:

$$S = \frac{F}{A}$$

where

F = breaking force in newtons, and

A = cross-sectional area in square millimetres, that is, the product of width and thickness of the test piece.

7.2 The value of elongation (E) at break is given in percent, by the following formula:

$$E = \frac{L - L_0}{L_0} \times 100$$

where

L = length in millimetres between gauge marks at break; and

L_0 = initial length in millimetres between gauge marks.

7.3 Test Report

7.3.1 The test report shall include the following particulars:

- a) The values for tensile strength and elongation at break,
- b) Type of test piece used,
- c) Method of determining cross-section,
- d) Number of test pieces used, and
- e) Temperature and humidity of test.

EXPLANATORY NOTE

In this standard dumb-bell test pieces only are applicable. The test pieces are stretched on a tensile testing machine at a constant rate of traverse of the driven grip or pulley. Readings of load and elongation are taken as required during the uninterrupted stretching of the test piece and when it breaks.

This standard has been published in various parts as follows:

- Part 1 Measurement of thickness;
- Part 2 Determination of durometer hardness, Shore A;
- Part 3 Determination of relative density;
- Part 4 Determination of volatility;
- Part 5 Determination of lead content;
- Part 6 Determination of tensile strength and elongation at break;
- Part 7 Flexing test resistance to cut growth for soling material; and
- Part 8 Resistance to flexing for polyvinyl chloride upper material.